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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/508,567	03/14/2000	BENNY PESACH	5491	8642

7590 09/05/2002

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EXAMINER
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ART UNIT	PAPER NUMBER
2675	

DATE MAILED: 09/05/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/508,567	PESACH, BENNY	
	Examiner	Art Unit	
	Leland R. Jorgensen	2675	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 March 2000* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1- 29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4,5* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1 - 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "slow variation" in claim 1 is a relative term which renders the claim indefinite. The term "slow variation" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The term "slow" is vague. The term "variation" is vague. The term "variation" does not explain what in the pattern is being varied or how it is being varied.

Regarding claims 27 and 28, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Claims 2 – 28 are rejected as dependant on indefinite claim 1.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 10, 11, 14, and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by McCurry, R. E., "Three-Dimensional Displays Utilizing Multiple Source Moire Patterns," IBM Technical Disclosure Bulletin, Apr. 1966, vol. 8, No. 11, pp. 1578-1579.

Claim 1

Claim 1 describes a device for displaying an image with an illusion of depth. McCurry teaches using moiré patterns to display information in a form having depth.

McCurry teaches a first surface, labeled view grid 2, which has a planar horizontally periodic array of transparent holes or slits.

McCurry teaches a second surface, labeled source surface 1, which has at least part of its surface printed with a predetermined pattern of substantially periodic features.

McCurry teaches that view grid is intermediate an observer and the source surface.

McCurry teaches that wherein the period of the second pattern has a "slightly different period" from the period of the first pattern.

McCurry teaches the surfaces being spaced apart by a distance d considerably larger than the period of the features. McCurry, figure.

McCurry teaches that the spacing of the surfaces is varied in a predetermined manner such that the interaction of the two patterns produces a Moire image exhibiting continuous three dimensional visual effects when viewed from the view gird side of the device.

Claim 2

Claim 2 is dependant on claim 1. McCurry teaches grating lines.

Claim 10

Claim 10 is dependant on claim 1. The device taught by McCurry can be viewed by the observer's naked eye without the need for any special viewing aids such as special spectacles.

Claim 11

Claim 11 is dependant on claim 1. McCurry teaches that the two surfaces are interchangeable, thus since the one surface is transparent, the other must also be transparent in order for the two surfaces to be interchangeable.

Claim 14

Claim 14 is dependant on claim 1. McCurry shows in figure 1 that the spacing of the surfaces is about 5 times the pattern period.

Claim 29

Claim 29 describes a device for displaying an image with an illusion of depth. McCurry teaches using moiré patterns to display information in a form having depth.

McCurry teaches a first surface, labeled view grid 2, which has a planar horizontally periodic array of transparent holes or slits. A second surface, labeled source surface 1, has at leas part of its surface printed with a predetermined pattern of substantially periodic features.

McCurry teaches the surfaces being spaced apart by a distance d considerably larger than the period of the features. McCurry, figure.

McCurry teaches that the spacing of the surfaces is varied in a predetermined manner such that the interaction of the two patterns produces a Moire image exhibiting continuous three dimensional visual effects when viewed from the view gird side of the device.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 3 – 4, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCurry in view of Drinkwater, USPN 5,694,229.

Claim 3

Claim 3 is dependant on claim 1 and adds that the features are shifted horizontally with respect to each other in different horizontal bands of the patterns, to produce images with varying vertical detail.

McCurry does not teach such.

Drinkwater teaches shifting the image horizontally to produce images with varying vertical detail. Drinkwater, col. 1, lines 34 – 58; col. 2, lines 17 – 64.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Drinkwater with the moiré image display of McCurry. Drinkwater invites such combination, by teaching.

> These constraints mean that as the viewer changes parallax looking at different viewing positions in the hologram the viewer sees no change in the relative positions of the patterns vertically (i.e. perpendicular to the Benton slit) so that as the view position moves along the Benton rainbow slit (i.e. parallax changing) the moiré pattern changes in form dramatically, whilst retaining the same original horizontal line of symmetry for all view points. This special constraint provides a visually simple and very distinctive moiré pattern with a simple and characteristic variability on tilting making the resulting effect very suitable and effective as a public recognition security device. The other advantage is that this constraint also involves a very particular relative geometry of pattern symmetry lines and Benton hologram rainbow slit (i.e. they must lie in the same

> plane). The moiré pattern will be sensitive in its form to any small changes in vertical position (i.e. going out of the plane of geometry) and even small changes from this geometry should cause a relatively large change in the form of the moiré pattern and in particular will cause the line of symmetry of the pattern to tilt dramatically away from the horizontal symmetry. This therefore makes reorigination very difficult because of the particular geometries and line forms required and also makes the pattern easy to authenticate as small changes from the defined required geometry should fairly dramatically alter the form of the moiré pattern making it very difficult to reproduce. The pattern itself is generally also of a highly recognizable form as it retains a horizontal line of symmetry as parallax is altered.

Drinkwater, col. 2, lines 36 – 64.

Claim 4

Claim 4 is dependant on claim 1. Drinkwater suggests that in a substantially vertical direction, the variation of the period of at least part of at least one of the patterns takes place in a substantially horizontal direction. Drinkwater, col. 1, lines 34 – 58.

Claim 28

Claim 28 is dependant on claim 1 and adds that the device is constructed and operative for small area use such as in credit cards.

McCurry does not specifically teach that the device is constructed and operative for small area use such as in credit cards.

Drinkwater teaches a moiré pattern that is constructed and operative for small area use such as in credit cards. Drinkwater, col. 1, lines 9 – 11, 34 – 44.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the moiré image device of McCurry with the moiré pattern of Drinkwater constructed and operative for small area use such as in credit cards. Drinkwater invites such by teaching the following advantages.

> The moiré effect techniques detailed above are designed to protect a security display hologram from counterfeit by direct reorigination by making reproduction of the image very difficult. For such security holograms it would also be advantageous to protect them from so called contact copying. ... Both of these techniques which degrade contact copies could usefully be used in an additional and subsidiary embodiment of this invention to produce a hologram well protected against counterfeit by use of the moiré technique and well protected against contact copying and remastering by use of a substrate or component layer designed to produce interference or polarization rotation effects under laser illumination.

Drinkwater, col. 11, lines 16 – 52.

7. Claims 5, and 18 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCurry in view of Cohen, USPN 4,889,421.

Claim 5

Claim 5 is dependant on claim 1 and adds that the views of the image as seen by each of an observer's two eyes are mutually displaced in such a way as to exhibit realistic three dimensional effects by means of the static parallax effect.

McCurry alludes to but does not specifically describe a parallax effect.

Cohen describes the parallax effect in the moiré pattern. Cohen, col. 4, lines 54 – 62.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the parallax effect of Cohen with the display device of McCurry. Cohen teaches,

> The moiré effect may be used to give a shimmering or glittering illusory mental image with movement and depth by virtue of parallax due to the physical separation of the two grid pattern layers. This phantasm of movement and depth can achieve startling visual effects. Moreover, the combination of motion, depth, and parallax that is provided by the grid patterns in the grid pattern layers provides a constantly changing, aesthetically pleasing pattern to the observer. When the grid patterns are provided in different colors, the resulting moiré effect is seen as striking and unusual color patterns appearing both natural and lifelike or both unnatural and artificial. In any case, the appearance achieved is unique.

Cohen, col. 4, line 63 – col. 5, line 8.

Claim 18

Claim 18 is dependant on claim 1. Cohen teaches that the two surfaces are disposed on the opposite sides of a transparent plate. Cohen, col. 9, lines 8 – 14; and figures 7a, 8c, and 10c.

Claim 19

Claim 19 is dependant on claim 1. Cohen teaches that the first surface is disposed on one side of a transparent plate, and the second surface is a thin printed layer disposed close to the second side of the plate. Cohen, col. 9, lines 8 – 14; col. 10, lines 38 – 47; col. 12, lines 7 – 27; and figures 7a and 10c.

Claim 20

Claim 20 is dependant on claim 1. Cohen teaches that both surfaces are thin printed layers disposed on both sides of a plate. Cohen, col. 9, lines 8 – 14; col. 12, lines 7 – 27; and figure 7a.

8. Claims 6 - 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCurry in view of Eaves, USPN 3,811,213.

Claim 6

Claim 6 is dependant on claim 1 and adds that the appearance of the image changes with change in the position of a viewer in such a way as to exhibit realistic three dimensional effects by means of the motion parallax effect.

McCurry does not describe the motion parallax effect.

Eaves teaches a motion parallax effect. Eaves, col. 1, lines 13 – 17; col. 15, lines 3 – 9.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the motion parallax effect of Eaves with the moiré display device of McCurry. Eaves teaches,

> By way of some general information it should perhaps be noted that moiré patterning has been well known for many years. In some instances moiré patterns have been deliberately created to produce desired effects. At one time moiré patterned fabrics were quite popular. Also, the lenticular devices discussed above make use of a type of moiré patterning. In other situations, however, for example, such as in half-tone printing, moiré patterns may be inadvertently generated and have to be eliminated or avoided.

Eaves, col. 1, lines 58 – 67. Eaves adds,

> In the present invention highly effective illusions of motion and depth are created through the use of printed, i.e., essentially flat two-dimensional, dot patterns which are overlaid or interacted in a plurality of different frequencies and angular relationships for cooperative effects to produce moiré patterns of light and dark areas. The dot patterns are formed on transparent sheets or films, and standard techniques in the printing and graphic arts industries can be employed for formation of the dot patterns. Motion illusion is accomplished through the use of two sheets of dot patterns. ... Movement of the activator sheet with respect to the art sheet causes changes in the positions of the light and dark areas of the moiré patterns and thus very effective illusion of motion can be created by appropriate selection of relative dot pattern frequencies and angular relationships.

Eaves, col. 2, lines 18 – 54.

Claim 7

Claim 7 is dependant on claim 1. Eaves teaches that the feature size of the image changes with the apparent depth in such a way as to comply with the mind's perception that distant objects appear to have narrower details and close objects have wider details. Eaves, col. 2, lines 55 – 64; col. 13, line 57 – col. 14, line 37.

Claim 8

Claim 8 is dependant on claim 1. It is inherent that to the device described by McCurry and Eaves that the feature size of the image changes with the apparent depth in such a way as to

comply with the geometric perspective effects that features on a tilted surface appear narrower than those on a flat surface by approximately the cosine of the tilt angle. See Eaves, col. 13, line 57 – col. 14, line 37; col. 15, lines 3 – 19.

Claim 9

Claim 9 is dependant on claim 1. Eaves teaches that the brightness of features of the image changes with the apparent depth in such a way as to comply with any other desired lighting effect. Eaves, col. 2, lines 55 – 64; col. 13, line 57 – col. 14, line 37.

9. Claims 12, 13, 15 – 17 and 21, 24 - 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCurry in view of McGarvey, USPN 5,586,089.

Claim 12

Claim 12 is dependant on claim 1 and adds that the second surface is translucent.

McCurry does not specifically teach that the second surface is translucent.

McGarvey teaches a moiré device where the second surface is translucent. McGarvey, col. 7, lines 51 – 55.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use a moiré device with a translucent surface as taught by McGarvey with the moiré image device of McCurry. McGarvey invites such combination, teaching, "Somewhat translucent pigments will act as color filters when rear illuminated, creating an effect similar to that of stained glass." McGarvey, col. 7, lines 53 – 55. McGarvey adds,

> This invention uses moiré pattern design displacement in the form of rotation, to produce composite images. The effects and images produced are dependent on pattern design and speed of rotation. With certain moiré pattern designs, cancellation patterns can produce cycles of multiple, changing, moving or otherwise animated images. The effect of illusion of motion, in which virtual

> images that move at various speeds or even appear to change speeds during a cycle of an effect is one example. Specific types of moiré pattern composites possess unique visual properties, such as inverse imaging, component magnification and separate composite shape production.

McGarvey, col. 4, lines 34 – 45.

Claim 13

Claim 13 is dependant on claim 1. McGarvey teaches that the second surface may be opaque. McGarvey, col. 7, lines 51 – 53.

Claim 15

Claim 15 is dependant on claim 1. McGarvey teaches both surfaces having the same color. McGarvey, col. 7, lines 26 – 50.

Claim 16

Claim 16 is dependant on claim 1. McGarvey teaches that the image printed with patterns of different color. McGarvey, col. 7, lines 26 – 50.

Claim 17

Claim 17 is dependant on claim 1. McGarvey teaches a third background color. McGarvey, col. 7, lines 26 – 50.

Claim 21

Claim 21 is dependant on claim 1. MaGarvey teaches a first surface is disposed on one side of a transparent plate, the second surface is disposed on one side of another plate, the plates being disposed at a fixed distance from each other such that the surfaces are spaced from each other by a predetermined distance. McGarvey, col. 4, lines 15 – 24; and figures 1 and 3.

Claim 24

Claim 24 is dependant on claim 1. McGarvey teaches that the device is illuminated from the rear. McGarvey, col. 8, lines 23 – 33.

Claim 25

Claim 25 is dependant on claim 1. McGarvey teaches an embodiment where the device is illuminated from the front by natural light and by ultraviolet light. McGarvey, col. 7, lines 38 – 43; col. 8, lines 34 – 36, 42 – 46.

Claim 26

Claim 26 is dependant on claim 1. McGarvey teaches an embodiment where the device is illuminated from at least one of its edges by ultraviolet light. McGarvey, col. 8, lines 34 – 36.

Claim 27

Claim 27 is dependant on claim 1. McGarvey teaches a moiré device that is constructed and operative for large area use such as in billboards. McGarvey, col. 1, lines 7 – 10; col. 3, lines 45 – 49.

10. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over McCurry in view of Roche et al., USPN 5,384,999.

Claim 22

Claim 22 is dependant on claim 1 and adds that at least one of the first and second surfaces is constructed of wire netting.

Although McCurry teaches a view grid, McCurry does not specifically teach a wire netting.

Roche teaches a wire mesh to form moiré patterns on a display. Roche, col. 1, lines 51 – 54; col. 3, lines 3 – 5; and col. 4, lines 13 – 16.

It would have been obvious to one of ordinary skill in the art at the time of the invention to use the wire mesh of Roche with the moiré display device of McCurry. Roche invites such combination, teaching, "Furthermore, the wire mesh or other apertured material 14 can be contoured such that various moiré patterns may be formed on its surface, depending on the user's preference and the incident light." Roche, col. 4, lines 13 – 16.

11. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over McCurry in view of Witkowski, USPN 5,525,383.

Claim 23

Claim 23 is dependant on claim 1 and adds that at least one of the first and second surfaces is thin and flexible such that it can be rolled on a cylinder.

McCurry does not teach that either or both of the surfaces are flexible and can be rolled on a cylinder.

Witkowski teaches a moiré image that is on a flexible surface that can be rolled on a cylinder. Witkowski, col. 2, lines 33 – 47; col. 7, lines 42 – 53; and figure 12.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the flexible moiré surface of Witkowski with the moiré display device of McCurry. Witkowski invites such, teaching,

> Container displays that are now in use are limited in their ability to attract one's attention. It is therefore one important objective of the invention to provide a container that is particularly well suited for use as a beverage or product container which is able to display transitory moving images to attract the attention and interest of the user e.g., as a retail beverage container such as a standard

> beverage can for beer or soda pop as well as for use as a plastic beverage bottle such as a 12-ounce or 2-liter beverage bottle of the type sold at retail outlets and is also adaptable for use as a cup, mug or sports bottle for holding a beverage. In order to be acceptable, the container must be very inexpensive to produce, must have excellent attention-getting qualities, must be easy to use and must be durable enough to stay in good condition for a reasonable period of use.

Witkowski, col. 1, lines 14 – 28. Witkowski adds,

> One specific object of the invention is to provide a beverage or food container or vessel for displaying transitory or animated images through the use of a movable sleeve with a provision for reliably retaining the sleeve in place on the container, i.e., prevent it from accidentally falling off either before or during use.

Witkowski, col. 1, lines 44 – 49.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Fukuda et al., JP 409132881 A, and Namikata, JP 10158964 A, teach moiré patterns having more than one color.

Kasamatsu, JP 10076076 A, teaches a device capable of making varying moiré patterns.

Cohen, USPN 4,876,121, teaches artificial nails with moiré patterns. Cohen, col. 2, lines 12 – 24; col. 10, line 51 – col. 11, line 10; and figure 8.

Lambert, USPN 5,823,576, teaches a first pattern and a second pattern for forming moiré images printed with the patterns being of the same color. Lambert, col. 6, lines 20 – 31. Lambert teaches the advantages of the moiré pattern.

> It would be advantageous to provide an inexpensive method for printing checks or other securities that would be difficult to copy with commonly-available equipment, that would be easy to spot by even a casual review of a false document, and that can be improved in tandem with improvements in the technology that is commonly available for copying.

Lambert, col. 1, lines 37 – 44.

Oster, G., and Nishijima, Y., "Moiré Patterns," Scientific American, May 1963, pp. 54-62.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leland Jorgensen whose telephone number is 703-305-2650. The examiner can normally be reached on Monday through Friday, 7:00 a.m. through 3:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven J. Saras can be reached on 703-305-9720.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office, telephone number (703) 306-0377.

lrj

DENNIS-DOON CHOW
PRIMARY EXAMINER